

UPGRADE WORKSHOP

Notebook hard disks

With most of us keeping music and photos on our PCs these days, we need all the storage room we can get. Simon Handby shows you how to give yourself some space by upgrading your notebook's hard disk

With programs, photos, video and even operating systems taking up ever more room, disk space is a continual headache for PC users. It's even worse for notebook users, whose hard disks are typically less than half the capacity of their desktop counterparts. Fortunately, a hard disk upgrade is an easy and cost-effective way to prolong your notebook's life.

Desktop hard disks store data on 3½"-wide platters, but most notebooks use drives with 2½" platters. These cost more than 3½" disks, but are still quite affordable at around £1 per gigabyte.

Hard disks use a small memory cache to speed up read and write operations. Drives with 8MB or 16MB caches cost more than those with 2MB, but are quicker. Drive spin speeds are measured in revolutions per minute (rpm). Pricier fast-spinning disks are faster, but use more battery power. Most important is choosing a disk that will work in your computer. See our Compatibility Checklist below.

Before upgrading, you need to decide what you'll do with the data on your old disk. A disk upgrade is a good opportunity to create a fresh install or update your operating system, but make sure you save your documents and files first, as discussed in our Compatibility Checklist. If you're creating a new installation, make sure you have your notebook's restore disc or Windows CD, or buy a new operating system.

CADDY Most notebooks use a drive caddy, of which there are many types. Generally, the hard disk screws into the caddy, which slots or clips into the notebook and is secured by further screws

DIMENSIONS The vast majority of notebook hard disks are 69mm wide and contain spinning platters that are 2½" wide. Modern disks are 9mm deep, but older drives are 12.5mm. A 9mm drive will generally fit a caddy of either depth

POWER PINS All 2½" IDE drives have these four pins for extra power, but they are rarely used

IDE ADAPTOR Many notebooks connect the hard disk through an adaptor. You can re-use the one from your old disk

2½" IDE CONNECTOR This shrunken IDE connector has been in use on notebook disks for over 10 years. A regular desktop IDE ribbon is too big. Some recent notebooks use SATA disks (see our Compatibility Checklist, below)

Some notebooks keep system restore information in a hidden disk partition. Windows applications can't see this, so it isn't normally possible to copy it to a new drive. If you're planning to use a restore CD, check first with your manufacturer that it doesn't rely on information stored on your original hard disk.

If you want to keep your existing operating system, use a disk-imaging program such as Norton Ghost to clone your entire hard disk on the new drive. To do this you'll need an external 2½" disk enclosure such as the RaidSonic Icy Box, reviewed in *What's New, Shopper* December 2005, and a USB port to plug it in.

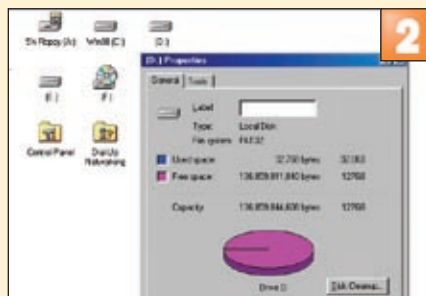
COMPATIBILITY CHECKLIST



INTERFACES

Most notebook hard disks are 2½" Parallel ATA drives with the small IDE connector shown in our main graphic, but some recent laptops use 2½" SATA disks as shown above. These are slightly faster, but cost more. The two interfaces aren't compatible and no converters are available for a notebook, so be sure to buy the correct drive. Compare your new disk to the old one before opening its anti-static bag.

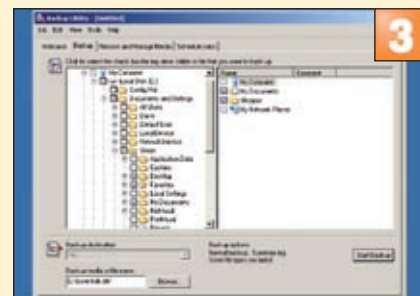
CHECKED ☐



DATA CAPACITY

Windows 95 only supports hard disks up to 32GB. Windows 98 and Me support drives up to 127.5GB, which is enough for the biggest current notebook disks. If your notebook dates from 1998 or before, its BIOS might not recognise a hard disk bigger than 8GB. More recent computers shouldn't have this limitation, but check your manual or the manufacturer's website for advice on the maximum supported capacity.

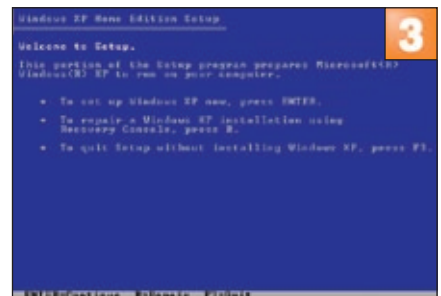
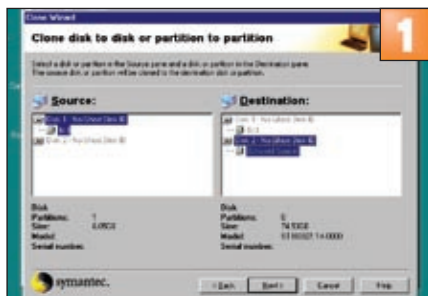
CHECKED ☐



BACK UP YOUR DATA

If you're installing a new disk from scratch, consider how to back up any important files from your old drive. If your notebook has USB or FireWire ports and you have Windows 98 SE or later, we recommend buying an external 2½" disk enclosure for your old hard disk. You'll be able to copy data directly from it to the new drive. After upgrading, you can use your old drive as an external disk.

CHECKED ☐



INSTALLATION

In this guide we're assuming that you have valuable data to transfer to your new drive, but if not you can skip Step 1. If you are cloning your disk, we'll assume you're using Ghost 10, but you could use a similar program such as Acronis True Image.

1 BACK UP OR CLONE THE DISK

If you aren't using an external disk enclosure, use Windows Explorer, backup or CD-burning software to transfer any important data to CDs or an external drive. The Windows XP version of Windows Backup won't read .QIC files created in Windows 95, 98 or Me. Make sure you have the drivers, usernames or passwords necessary to access your backup once you have installed your new hard disk, and proceed to Step 2.

Using an enclosure is easier. Simply insert the new disk into your external enclosure following the instructions. Connect the enclosure to your laptop, and install drivers for Windows 98 or Me if necessary. Windows should now detect your new disk and display a removal icon in the System tray, but it won't assign a drive letter unless the disk has been formatted. Ghost will be able to use it regardless.

WINDOWS 98 AND ME

Run Ghost 2003 and select Clone from the Ghost Advanced menu. In the Clone Wizard, select the disk containing drive C: as the source. Your new disk will probably be disk two, labelled Unused Space, as in

the picture above. Select this as the destination and click Next. Don't check either box on the Device Information dialog that appears next; just click OK.

Click Advanced settings on the next page of the Clone Wizard, and look at the External Storage tab of the Advanced settings dialog. Unless you know that your notebook has a USB2 controller, choose USB1.1 Drivers and click OK. Click Next on the Clone Wizard, then click Run Now. Ghost will reboot your computer to begin the clone operation. This could take several hours with a USB1.1 connection, so be patient.

WINDOWS 2000 AND XP

Run Ghost 10 and select Copy My Hard Drive from the Backup menu. Click Next on the first Copy Drive Wizard window, select your current disk on the Source Drive page, then click Next again. In the Select Destination list, choose your new hard disk (probably disk two) and click next again. In the Options screen that appears, select the Resize drive to fill unallocated space and Set drive active options. Click Next, then click Finish to start the operation, which could take several hours.

2 SWAP OLD FOR NEW

Turn off and unplug your notebook. Refer to the user manual if necessary for guidance on how to remove the hard disk caddy.

ON YOUR DISC

We covered using Ghost and Windows Backup in *Advanced Windows*, *Shopper* March 2006. The article is included on this month's cover disc.

It's normally secured by one or two small screws or a sliding lock.

Four screws mount the drive into most caddies. Others clip together to form a six-sided box, and it may not be obvious how to open them. Check for screws first, then look for a place at either end to insert the blade of a blunt knife or screwdriver gently and work the caddy open as above. You'll

need to re-use the caddy, so be very careful not to damage it.

The old disk should now be free. Remove your new one from the external enclosure if used, and then fit it to your notebook's drive caddy, remembering to transfer any necessary adaptor. Carefully replace the caddy in your notebook.

3 INSTALL AND RESTORE DATA

If you cloned your old disk, your computer should now boot from the new drive exactly as before. If everything works, you can fit your old disk in your external drive enclosure, format it and use it as a spare portable drive.

If you're creating a new installation, you need to prepare your new disk by booting from your manufacturer's restore CD, or installing an operating system. Once your new installation is running, restore any data that you need. Keep the backup safe until you are positive that you no longer need it. **ES**

TESTING AND TROUBLESHOOTING

If you work patiently and with care, you'll always be able to reconnect your old disk if something doesn't go to plan. Don't force your new disk into your notebook. If it won't fit, double-check it has the same interface and dimensions as the old one and that you've mounted it the correct way up in the disk caddy. Check you've transferred any adaptor from the old disk's IDE pins, that

you've re-assembled the caddy correctly and that the screw heads are flush with the case.

If you've successfully cloned your old disk on to the new one, your computer should appear almost unchanged. You may notice that Windows starts a little more quickly and that other disk-intensive operations are a little faster.

Whichever method you have used, open My Computer and check that the size of drive C: corresponds to the formatted capacity of the drive you installed. This is normally around 90 to 95 per cent of the disk's nominal capacity. For example, a formatted 60GB disk will appear as a 55.9GB drive.

■ If your computer won't recognise your new hard disk, you may need to follow the manufacturer's instructions to enter its BIOS and change the hard disk settings. Any manual settings for the old disk probably won't suit the new one, so use the AUTO option instead.

■ If your disk appears to be the same size as the old one, your disk-cloning program hasn't

successfully resized the partition. It may include a utility that allows you to do this manually. If not, visit www.sysresccd.org, download the rescue CD image and burn it to a CD. Boot your system from this, and use the QTParted program to resize the partition.

■ If your disk appears significantly smaller than it should be, you may not have created a large enough partition when installing your operating system. In Windows 2000 or XP, right-click My Computer, select Manage and Disk Management under the Storage heading. You can create a new partition here to make the remaining space available as a second drive, or use the QTParted utility described above to extend the current one. Windows 98 and Me users could use the DOS-based Fdisk utility to create a new partition, but we recommend QTParted.

■ If you still can't access all your disk, your BIOS may not support the full capacity. Check the manufacturer's website for an update.



Look on the disk manufacturer's website for helpful troubleshooting information